



To: Cash Management Policy Board

From: John Krimmel, Partner and Jennifer Appel, Senior Research Analyst

Date: August 28, 2019

Subject: Delaware Budget Reserve Account Reserve Analysis

Background

NEPC was asked to update the Delaware Budget Reserve Account (Rainy Day Fund) analysis to ensure that an adequate reserve or cushion above the statutorily required amount was maintained. The minimum amount that must be maintained in the Budget Reserve Account, for Fiscal Year 2020 is \$252,355,000, which is an increase of \$11,940,000 from the Fiscal Year 2019 level of \$240,415,000. The current reserve or cushion for Fiscal Year 2019 was \$5,000,000 bringing the total for Fiscal Year 2019 to \$245,415,000.

Consistent with the prior year review, JP Morgan and NEPC prepared analyses that considered increases in interest rates and other market shocks. The results of these separate analyses are presented in the following section and result in a recommendation for consideration by the Cash Management Policy Board.

Analysis

JP Morgan prepared the following analysis of the reserve based upon interest rate increases of 0.25%, 0.50%, and 1.00%.

Impact of Rate Changes on JPM Reserve Portfolio
(and pro-rated impact on Rainy Day Fund)

As of June 30, 2019

Entire Portfolio		Rainy Day Portion	% of Total
Market Value	\$ 446,540,500	\$ 252,355,000	56.51%
Duration	1.81	1.81	
Interest Rate Shock (bps)			
25	\$ (2,023,945)	\$ (1,143,799)	
50	\$ (4,047,889)	\$ (2,287,598)	
100	\$ (8,095,779)	\$ (4,575,196)	



NEPC conducted a second analysis using JP Morgan's historical volatility (standard deviation) and NEPC's 2019 Capital Market Assumptions to determine expected volatility and confidence intervals. The analysis, presented below, mirrors the JP Morgan analysis in that the first result (labeled "Gross Decline") presents the immediate results of a market shock and the second result (labeled "Net Decline") presents the results (gain or loss) one-year forward.

State of Delaware
Budget Reserve Account "Rainy Day Fund"
Data as of June 30, 2019

Required Balance \$252,355,000

	<u>Return</u>	<u>Volatility</u>	Gross Decline with a		
			<u>1 SD Event</u>	<u>2 SD Event</u>	<u>3 SD Event</u>
JP Morgan Actual (3-Yrs)	1.59%	0.98%	\$ (2,473,079)	\$ (4,946,158)	\$ (7,419,237)
NEPC Capital Market Assumptions	2.50%	2.71%	\$ (6,838,821)	\$ (13,677,641)	\$ (20,516,462)

	<u>Return</u>	<u>Volatility</u>	Net Decline with a		
			<u>1 SD Event</u>	<u>2 SD Event</u>	<u>3 SD Event</u>
JP Morgan Actual (3-Yrs)	1.59%	0.98%	\$ 2,574,021	\$ 100,942	\$ (2,372,137)
NEPC Capital Market Assumptions	2.50%	2.71%	\$ (1,791,721)	\$ (8,630,541)	\$ (15,469,362)

Net Decline is a 1-year forward looking decline assuming the portfolio earns a 2.0% yield.

The table below summarizes the results of the two analyses. Consistent with our findings last year, using JP Morgan's historical volatility, the 1-standard deviation (Gross Decline) event corresponds roughly with the 0.50% interest rate increase (instantaneous), while the 2-standard deviation event corresponds roughly with a 1.00% increase.

State of Delaware
Budget Reserve Account "Rainy Day Fund"
Comparative Analysis

	<u>25 bps</u>	<u>50 bps</u>	<u>100 bps</u>
JP Morgan Results	\$ (1,143,799)	\$ (2,287,598)	\$ (4,575,196)
	<u>1 SD Event</u>	<u>2 SD Event</u>	<u>3 SD Event</u>
NEPC Gross Decline	\$ (2,473,079)	\$ (4,946,158)	\$ (7,419,237)
NEPC Net Decline	\$ 2,574,021	\$ 100,942	\$ (2,372,137)

In recent meetings with JP Morgan and other fixed income investment managers, the consensus outlook is that interest rates will likely fall slightly during the remainder of fiscal



year 2020. Further, the market, as of August 1, 2019, has priced in two short-term interest rate decreases by the Federal Reserve over the remainder of Fiscal Year 2010.

Summary & Recommendation

In summary, both the JP Morgan and NEPC analyses indicate that the current \$5,000,000 reserve or cushion in Delaware's Budget Reserve account can withstand a 1.00% rise in interest rates or a 2-standard deviation event.

Based on the result of these analyses, and the market's expectations of two short-term interest rate cuts, we believe that the Delaware Budget Reserve Account's reserve or \$5,000,000 is adequate and remains appropriate.

We look forward to discussing the analysis with the Investment Subcommittee Meeting of the Cash Management Policy Board on Wednesday, August 28, 2019.